

Name: key
Biology: **Ecology Test**

74
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Date: 4/15
Block:

Part I: Multiple Choice (2 points)

Identify the letter of the choice that best completes the statement or answers the question.

- C 1. Many individuals of the same species living together in a defined area form a/an
- a. community
 - b. genus
 - c. population
 - d. ecosystem
- B 2. Plants play a role in the water cycle by performing _____, which returns water to the atmosphere by evaporating from the leaves of plants.
- a. evaporation
 - b. transpiration
 - c. condensation
 - d. fermentation
- C 3. The sequence of energy flow through a food chain is
- a. primary consumers→producers→secondary consumers
 - b. secondary consumers→primary consumers→producers
 - c. producers→primary consumers→secondary consumers
 - d. producers→secondary consumers→primary consumers
- B 4. An ecosystem is made up of
- a. biotic things only
 - b. biotic and abiotic things
 - c. Madonna only
 - d. abiotic things only

D 5. An example of a consumer in a pond ecosystem is

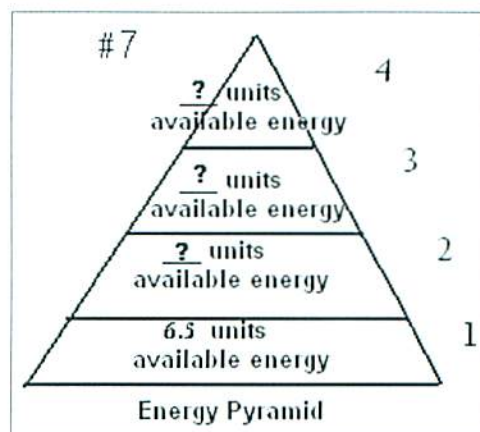
- a. water lily
- b. algae
- c. reed grass
- d. frog

C 6. When a baboon population in a rainforest cannot grow any larger, it has reached its

- a. minimum size
- b. limiting factor
- c. carrying capacity
- d. disco community

D 7. What is the amount of available energy for trophic levels 2, 3, and 4 respectively for the pyramid pictured to the right?

- a. 65, 650, 6,500
- b. 1, 10, 100
- c. 650, 6,500, 65,000
- d. 0.65, 0.065, 0.0065



C 8. Which list of terms is in the correct order from smallest to largest [most specific to least specific]

- a. individual, community, population, ecosystem, biome, biosphere
- b. population, community, individual, biome, ecosystem, biosphere
- c. individual, population, community, ecosystem, biome, biosphere
- d. biosphere, biome, ecosystem, community, population, individual

B 9. Carbon cycles through the biosphere in all of the following processes EXCEPT

- a. photosynthesis
- b. transpiration
- c. burning of fossil fuels
- d. decomposition of plants and animals

B 10. All of the following factors contribute to Earth's climate EXCEPT

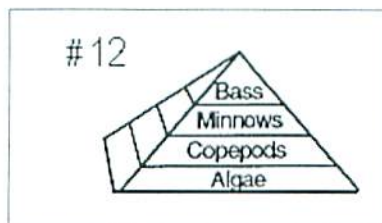
- a. latitude
- ☒ b. biomes and ecosystems
- c. wind and ocean currents
- d. shape and elevation of land masses

C 11. Which is a biotic factor that affects the size of a population in a specific ecosystem?

- a. average temperature of the ecosystem
- b. type of soil in the ecosystem
- ☒ c. number and kinds of predators in the ecosystem
- d. concentration of oxygen in the ecosystem

D 12. Which level of this food pyramid represents the largest biomass?

- a. bass
- b. minnows
- c. copepods
- ☒ d. algae



A 13. The movements of energy and nutrients through living systems are **different** because

- ☒ a. energy flows in one direction and nutrients recycle
- b. energy is limited in the biosphere and nutrients are always available
- c. nutrients flow in one direction and energy recycles
- d. energy forms chemical compounds and nutrients are lost as heat

B 14. The greenhouse effect is

- a. the result of an excess of carbon dioxide in the atmosphere
- ☒ b. a natural phenomenon that maintains Earth's temperature range
- c. the result of the differences in the angle of the sun's rays
- d. an unnatural phenomenon that causes heat energy to be radiated back into the atmosphere

- D 15. Temperatures on Earth remain within a suitable range for life as we know it because of the
- a. unequal heating of Earth's surface
 - b. loss of heat to space
 - c. radiation of sunlight back into the atmosphere
 - d. greenhouse effect
- A 16. The event that can occur after a lake receives a large input of a limiting nutrient is
- a. an algal bloom
 - b. algae begin to die and decomposers take over
 - c. nitrogen compounds are recycled
 - d. the concentration of oxygen drops below the necessary level
- B 17. Organisms need nutrients in order to
- a. utilize hydrogen and oxygen
 - b. carry out life functions
 - c. recycle chemical compounds
 - d. carry out nitrogen fixation

Part II: Matching (2 points)

Match the description that best suits each term by drawing a line to connect the terms and writing the letter on the line. One description will not be used.

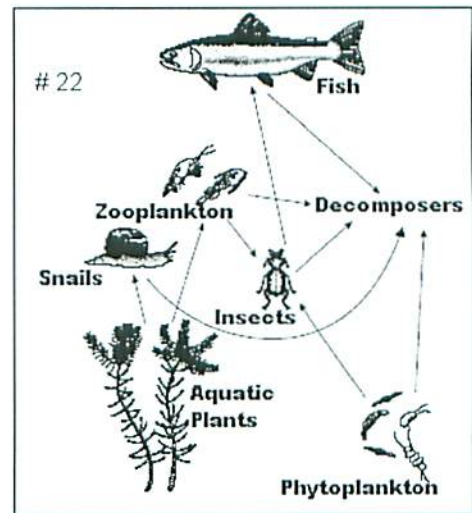
- | | |
|-------------------------|---|
| <u>B</u> 18. herbivore | A. organism that obtains energy by eating <u>only</u> animals |
| <u>E</u> 19. omnivore | B. organism that obtains energy by eating <u>only</u> plants |
| <u>D</u> 20. decomposer | C. organism that feeds on plant and animal <u>remains</u> and other dead matter |
| <u>A</u> 21. carnivore | D. organism that breaks down and obtains energy from dead <u>organic matter</u> |
| | E. organism that obtains energy by eating <u>both</u> plants and animals |

Part III: Short Answer (4 points)

Answer the following questions in complete sentences when applicable.

22. Which of these populations would probably increase if the zooplankton population decreased?

aquatic plants

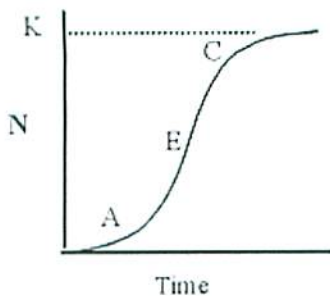


23. Distinguish between weather and climate.

weather = day-to-day conditions
climate = average temperature and precipitation

24. Answer the questions based on the given Population Growth Curve.

Sigmoidal Growth



a. Circle which letter indicates the carrying capacity: A or E or **C**

b. Define the term carrying capacity using 1 or 2 bullets.

- when an environment can't support a population anymore
- not enough resources

25. Describe 1 limiting factor within the ecosystem we live in, Westerly. Why would you consider it a limiting factor?

- water
- temperature > once maxed out/removed affects populations

Part IV: Essay (8 points)

Answer 2 of the 3 essays in complete sentences on a **separate piece of lined notebook paper**, making sure to answer the entire question. Staple the papers to your test once completed.

6-8 → 26. a. Create a food ^{web} ~~CHAIN~~ using one type of organism from each of the 4 trophic levels. Use ⁴ ~~1~~ organisms of your choice.

2 Label each organism with its appropriate feeding habit title.

2 Draw arrows connecting each organism showing the feeding relationships between the organisms.

answers vary

b. ² Circle and list the keystone species. ² Why do you consider this organism to be the keystone species of your food web?

- rely on organism for food source

27. a. Describe ² 3 processes by which carbon cycles throughout our biosphere. Note ⁴ how the carbon travels from each spot. Describe how the carbon moves like a story so it flows nicely [think about the Traveling Carbon Cycle Sticker Activity].

see attached cycle figure

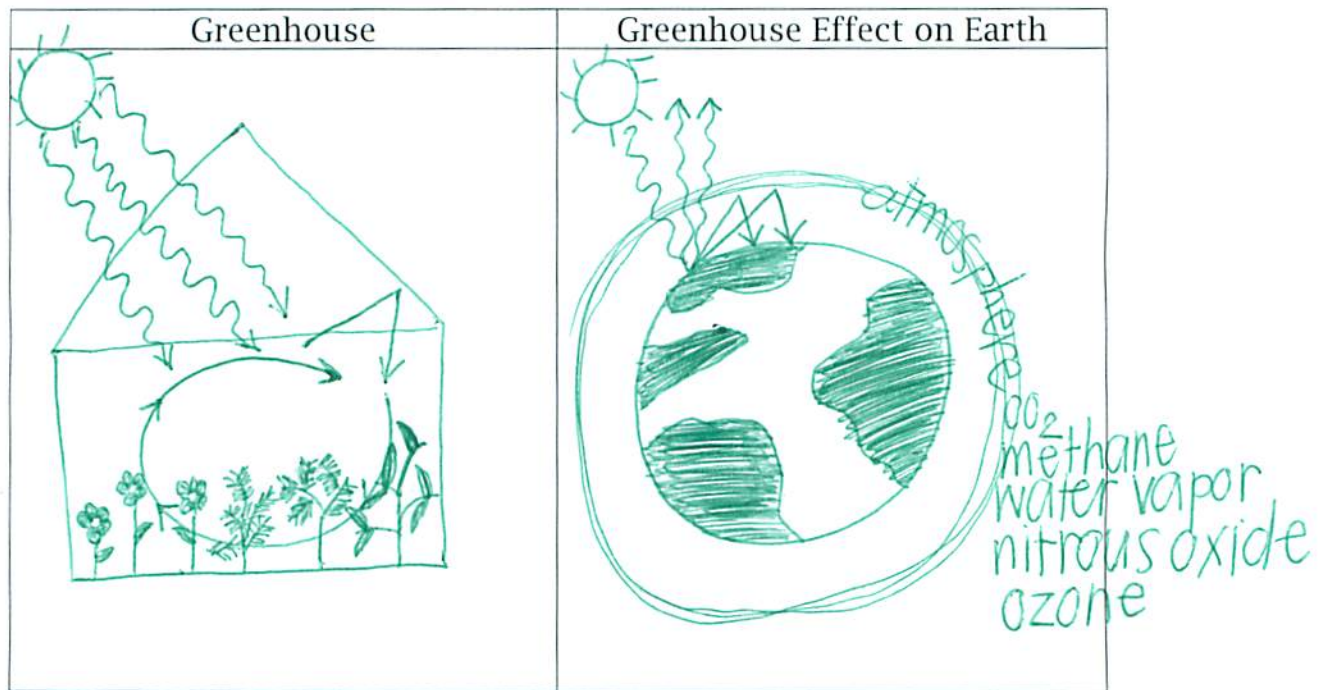
² b. Why is it important that the carbon cycle is not interrupted?
[i.e. why is it important to Earth?]

- carbon in everything - needed for plants function
- carbon needed in atmosphere

² c. If carbon is necessary for life to exist then why is there so much controversy about having too much carbon in our atmosphere [**hint**: think about *An Inconvenient Truth*, and how CO₂ and temperature are related].

- more CO₂ → ↑ temperature
- good for CO₂ normal ranges → too much of a good thing is bad
- rates increasing rapidly over a "short" amount of time
- human activity increasing amounts rapidly

28. a. Draw a picture of how a greenhouse works and how the greenhouse effect works on Earth. COPY THIS TABLE ON YOUR NOTEBOOK PAPER!



2 b. How does the greenhouse effect play a role in global warming?

2 c. What is the difference between climate change and global warming?

2 d. Describe 2 ways that we can reduce our greenhouse gas emissions.

too much emissions → thickening blocking/not letting out
 climate Δ = precipitation + temp. global warming = temperature
 - alternative energy - biodiesel - solar, wind, water
 - renewable energy - household appliances - mpg stds.

BONUS #1: (2 points)

If an ecosystem is polluted with a **toxin** that is consumed by the primary producers and is passed on down the food chain, it is found that the higher level consumers have a higher concentration of the toxin in their bodies. What is this ecological principle called?

biological magnification

BONUS #2: (0.5 points each)

List 3 greenhouse gases.

- methane
- water vapor
- CO₂
- nitrous oxide
- ozone

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21
22
32
11
14

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